

Web-Based Training (WBT) Authoring Tool Set Recommendation (Preliminary)

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Executive Summary

The VDH purchased two WBT authoring tools, Articulate/Quizmaker and Lectora, for the purpose of evaluating each tool's potential for developing the STD/HIV Certification WBT course.

SetterDog Consulting (SDC) performed a limited feature evaluation and has reached the following recommendation: the Articulate Presenter/Quizmaker tool set can seemingly accomplish most of what Lectora can do, but in less time, and is an easier tool to use. Given the VDH's knowledge transfer requirements post-implementation, Articulate Presenter/Quizmaker appears to serve everyone's needs: VDH staff, SDC, and most importantly, the learners.

SDC evaluated each tool set by developing simple text/graphics and quiz screens. SDC did not test animation and/or video creation/integration. SDC had not authored a WBT course in either tool, so the learning curve going into this evaluation with each tool was about equal: SDC had to learn how to use each tool as each was evaluated. In the end, the learning curve seemed significantly shorter with Articulate/Quizmaker.

SDC has not yet evaluated the technical LMS integration of either tool at this stage but will work with Sharon Hilley, the VDH's Distance Learning Coordinator, and other VITA staff as required to evaluate the ease of implementation and cost of both sample lessons created. After which, SDC along with Sharon Hilley, will make a final recommendation on the preferred tool set based on both development *and* technical considerations.

At this point, all things being equal, SDC recommends Articulate/Presenter for the reasons described in the body of this report that follows.

Evaluation Approach

SDC's plan was to develop an identical (to the extent possible) 3-screen test in both tools to include: a title screen, a content screen, and an interaction/quiz screen.

SDC set out to determine the relative ease at which an experienced WBT Developer, though novice Articulate/Quizmaker and Lectora Developer, could create such a simple test course using each tool set.

The specific criteria to be evaluated were the:

1. Speed of Development
2. Attractiveness of the Subsequent Design Templates
3. Information Architecture (i.e., learner ease of use)
4. Built-In Functionality
5. Ease of Customization

The remainder of this report will detail each of the 5 evaluation categories above and then summarize this evaluation with an overall recommendation.

Evaluation Categories

Speed of Development

SDC spent approximately 3 hours developing the Lectora test course and approximately 1 hour to develop the Articulate test course. See Table 1 below:

Tool	Speed of Development (Hours)
Lectora	3
Articulate	1

Table 1: Relative Speed of Development

Although this 3:1 ration seems somewhat dramatic, it must be understood that the learning curve required for SDC to get up to speed on each tool has to be considered. Once the SDC Developer has achieved an acceptable proficiency in either tool, it's believed that the speed of development gap would collapse, with the greatest reduction in time estimated in using Lectora.

However, since Articulate is inherently easier to use out-of-the-box, time is essentially money. Although budget should never dictate the quality of the resulting WBT course, *speed of development* is nevertheless a critical consideration. The Ease of Customization section builds upon this argument later in this document.

The key difference in the speed of development of the two test courses in this evaluation was largely due to the ease of creating a quiz¹ and configuring the quiz via the software's settings and controls to achieve the functional requirements for testing specified by the VDH (see the Built-In Functionality section below). A key strength of Articulate is its Quizmaker interaction/quiz generation tool. It is a stand-alone software package that has fairly robust, built-in authoring functionality. Once completed, an interaction or quiz can be then seamlessly integrated into the Articulate WBT course.

Lectora has a slightly similar interaction/quiz interface, but the resulting output is not nearly as attractive as Articulate Quizmaker's. Notably, Lectora's quiz buttons are standard, first-generation Windows type grey buttons that contrast with the slick design

¹ For simplicity sake, SDC created a 1-question quiz. However, the configuration to achieve the mastery requirements, learner controls, etc. were the same as if SDC had created a quiz of much greater length.

of Lectora's main course template's buttons and thus give an incongruent and unprofessional look and feel to the overall course.

Advantage: Articulate

Attractiveness of Test Course/Template

In SDC's opinion, both Lectora and Articulate are packaged with a fair assortment of course development templates right out of the box that are intended to speed up the time to develop a given course by letting the developer focus on developing the course rather than detailed template design.

Lectora might have an edge in terms of the relative attractiveness of their templates. However, SDC is more concerned about *usability* (see the Information Architecture section below) than the perceived attractiveness of the template buttons, for example.

However, because Articulate is a Microsoft PowerPoint bolt-on application, it uses the already robust design features of PowerPoint to achieve a very professional and familiar appearance. For example, the ability to import clip art and other media is relatively simple and standard across the Microsoft Office suite. In other words, doing so requires no additional learning on the part of the Developer.

Advantage: Even

Information Architecture

Both tool sets come with templates that have all the minimum navigational controls (home, back, forward, etc.) designed into common user interfaces (left-hand, top, and/or bottom navigation panels). However, Articulate's standard template comes pre-built with a few other navigational aids worth noting.

Specifically, the learner can navigate/view an outline or "thumbnails" (miniature screens) of the course screens. The learner can also read any notes that a Developer might include along with the normal instructional content found on each screen. Such notes can be used to provide tips, real-life examples, definitions, etc. and can extend and enrich the learning experience significantly if used appropriately.

Lectora also has a "notes" feature, but it is not as professional in appearance as Articulate's similar feature. With Lectora, the Developer creates yellow, "sticky-note" type notes that get attached to the instructional content.

Another useful navigation feature that Articulate provides learners is the ability to search for key words or text strings throughout a WBT course. For finding a topic quickly, this feature can save a learner significant time and extends a WBT course into a quasi reference tool.

Advantage: Articulate

Built-In Functionality

Lectora is a more complex authoring tool, no doubt. The speed at which an experienced ABT Developer can create a robust, highly interactive and pleasing course is tempered by the feature richness of the tool. However, SDC cautions against selecting a tool based solely on its available features/functionality if many of those features might never be used.

For example, Microsoft Project is a very robust project planning tool that is required by many firms when building new systems applications. As such, Microsoft Project has become the de facto tool for Information Technology project management professionals throughout the world. However, Project is *not* a tool for casual use as its feature set can actually prohibit the creation and use of a relatively simple build by forcing the project manager to work around the rich feature set of the tool just to create and manage a basic project plan. In other words, such a tool can actually work *against* the user. Such is the case with Lectora – *potentially*.

That said, the VDH must consider the extensibility of the WBT course currently under development as well as the design and development of *future* WBT courses. Together, the VDH and SDC need to make an educated decision on the chances of such authoring tool functionality ever being required.

Given the requirements described and signed-off by the VDH in the Instructional Design Plan (IDP) and the Course Design Guide (CDG), both tool sets have the minimum functional requirements to allow the effective development of the subsequent WBT course. See Table 2 below:

WBT Functional Requirements	Lectora	Articulate / Quizmaker
18+ Module Capability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Learner Login (via LMS)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Job Role Customizable Course Administration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Web-Based Delivery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pre-Built, Customizable Templates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Text, Graphics, Audio, Animation, Video Integration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

WBT Functional Requirements	Lectora	Articulate / Quizmaker
Flash Development and/or Integration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quiz Development	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> +
Quiz Scoring, Reporting, and Supervisor Administration (via Authoring tool and/or LMS)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Unlimited Quiz Tries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pre-Testing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pass/Fail Type Certification	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Forms Simulation	<input checked="" type="checkbox"/> +	<input checked="" type="checkbox"/>
Internet Explorer 5.5 and above and Netscape 6.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
"Free" Learner Navigation (non-linear)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SCORM 1.2 and/or 2004 Compliancy	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ease of and Cost of LMS Integration ²	Unknown	Unknown

Table 2: WBT Functional Requirements by Authoring Tool³

² As discussed earlier in this document, the course integration criteria will be evaluated outside of this evaluation, but will assuredly impact SDC's final tool set recommendation.

It should be noted that SDC did not evaluate either tool based on any non-required functionality. The primary task for the purpose of this evaluation was to determine how well each tool handled the functional requirements only.

Lastly, it should be noted that the course to be developed is a “certification” course, which implies a significant emphasis on the type, level, and quality of the interactions provided the learners. It is the VDH’s goal to ensure that each learner meets the minimum requirements of their unique job. To that end, Articulate comes installed with approximately 21 interaction types pre-built, whereas Lectora has only 8.

Advantage: Even

Ease of Customization

Lectora, as mentioned earlier in this document, is an extremely robust tool. As such, it allows the Developer to customize a course template and subsequent course in ways that perhaps are imaginable only to the Developer. Lectora is a dedicated WBT authoring tool. Articulate, on the other hand, is also a dedicated WBT authoring tool – but one that’s built upon or into the Microsoft PowerPoint software.

Articulate builds upon the already inherent and robust presentation design features of PowerPoint, allowing the Developer to begin course fairly quickly. As previously noted Lectora is a stand alone product that requires more effort and time to learn and master. However, Lectora is built upon a familiar Windows-based platform and its design metaphors (e.g., books, chapters, sections, etc.) are familiar to the experienced WBT Developer.

But because Articulate is a simpler tool to use, it is inherently easier to customize – to a point. Because Lectora is ultimately a “power tool” and has more built-in functionality, it can be customized to potentially do what would be difficult or impossible in Articulate.

What the VDH and SDC has to weigh then is whether Articulate has enough pre-built capability and ease of customization potential to do what the VDH needs it to do not only today but in the future. SDC believes that it indeed does, and is easier to use as well.

A key requirement that the VDH has communicated to SDC is the transfer of knowledge throughout the course’s development and especially towards its completion. The VDH’s goal is to be able to easily enhance and or modify this course and perhaps use it as a template for future courses to be developed internally by non-technical staff. To this end, SDC believes that ease of customization and ease of use are critical considerations in the selection of a standardized VDH WBT authoring tool.

Advantage: Articulate.

³ Functional requirements that are more easily accomplished in a particular tool set are indicated by a “+” in the relevant cell.

Preliminary Recommendation

SDC *preliminarily* recommends the Articulate/Quizmaker tool set. The Speed of Development and Ease of use are very critical factors in making this recommendation.

Of course, an automatic sedan is inherently *easier* to drive than a semi-truck. However, a sedan cannot haul several tons of goods. What must be considered then are the size, scope, and complexity of the task at hand and the ability of each tool to meet those demands.

Given the evaluated criteria to-date, Articulate seems to meet those requirements.

Next Steps

SDC will “package” a very basic and simple demo of a brief course developed in each tool set to be installed onto va.train.org, the VDH’s LMS. Each tool’s technical, ease and cost of LMS integration criteria will then be considered and added to the already evaluated criteria discussed in this document. Together, all criteria will be re-weighed and a final recommendation made at that time.

Appendix A

External Research: Comparison of PowerPoint Converters and WYSIWYG Tools

SDC conducted a cursory online search for research and/or articles on the comparison of WBT authoring tools to add some insight into this evaluation.

Below is a comparison of Microsoft PowerPoint converter authoring tools such as Articulate versus WYSIWYG tools such as Lectora, Toolbook, etc. found on <http://www.readygo.com>. Because the WYSIWYG column in the table below contains the features/capabilities of *several* authoring tools, it's somewhat difficult to draw any conclusions regarding the specific comparison of Articulate versus Lectora from this research.

Additionally, SDC believes the comparison is out-of-date or inaccurate. For example, the chart lists no capability to include articles in Articulate WBT courses. Articulate developers certainly can do so through the "attachment" feature found in Articulate v5. Where possible, SDC commented in red such discrepancies.

Market	PowerPoint to Flash converters (Articulate)	WYSIWYG Tools (Lectora, Toolbook, Trainersoft ...)
Ease of use	Very easy – one button turns your PowerPoint into a Flash presentation	Requires extensive training. May simplify development by providing stock templates.
Speed of Development	Seconds (to convert an existing PowerPoint presentation) (SDC Note: This is deceptive as development time does not take "seconds" as indicated here, but weeks)	Weeks
Market	Presenters	Professional course developers
Tool Focus	PowerPoint is a presentation tool. Creates flat page to page content	Tool is used to assemble

	outline.	multimedia elements on a page. Creates a single tiered courses consisting of daisy-chained pages. Each element displayed on a page is saved outside the HTML page and read into a specific location.
Student Session Duration	Student stays on presentation 2 to 5 minutes (SDC Note: This is a design element; meaning that if designed similarly, a learner will be in a “session” for the same length of time, regardless of the authoring tool used)	Student stays on course for 25 minutes to an hour.
Student Feedback	Frustrated, unhappy with flat content	Positive feedback (Depending on the quality of material.)
Instructional Design; Web Design	No	Author must understand and create
Price Per Creator	\$1,000	\$1,500-\$3,500
Overview		
Course Structure	Uses PowerPoint structure (converter has no structure) Adds page listing sidebar navigation.	No inherent structure. Author must create structure.
Page structure	PowerPoint pages	No inherent structure. Author must create structure
Web Viewing	Graphic presentation. Flash automatically re-adjusts for browser size.	HTML page with call outs to page elements. Absolute positioning of page elements. Must

		pre-set window size before creating course.
Navigation	Option for automatic slide show or back and forward button between slides	Author must design and create all navigation (SDC Note: Not true. Templates are available that do this)
Navigation Flexibility	Very limited	Navigation can be located anywhere
Input Process	PowerPoint	WYSIWYG screen – needs to be set up before content can be entered
Look (course skin)	Chapter sidebar can be customized – content is PowerPoint	High level of customization – templates are created on a page level basis
Post Processing Capabilities	No	No
Web search/Knowledge Management	Presentation is a graphic, can't be searched (SDC Note: Not true. Articulate v5 has a Search feature built into its templates)	Content is not stored in HTML page. May be exported in an XML file – Search engine and KM system needs to recognize XML data types.
SCORM/AICC	Limited – supports start, stop, and score (SDC Note: Not true; is fully SCORM 1.2 and 2004 compliant)	Limited – supports start, stop, and score (SDC Note: Not true; is fully SCORM 1.2 and 2004 compliant)
LMS Support	One page fill in box – generic SCORM interface	Must program start, stop, and score

		into course – creates generic SCORM interface
ADA – Blind Reader Compliance	Incomplete - XML page (all course text saved on one page – No XML blind reader standard)	Incomplete - XML page (all course text saved on one page – No XML blind reader standard)
Features		
Services Bar	No	Author must design and create page and navigation
Chapter (side) Bar	Yes	Author must design and create page and navigation
Course instructions	No (SDC Note: Not true. Author can indeed create)	No (SDC Note: Not true. Author can indeed create)
Chapter Summary	No (SDC Note: Not true. Author can indeed create)	Author must design and create page and navigation
Help	No (SDC Note: Not true. Author can indeed create)	Author must design and create page and navigation
Glossary	No (SDC Note: Not true. Author can indeed create)	Author must design and create page and navigation
FAQ	No (SDC Note: Not true. Author can indeed create)	Author must design and create page and navigation
Course Map	No (SDC Note: Not true. Their templates provide 2 course views or maps)	Author must design and create page and navigation
Bookmark	No (SDC Note: Not true)	Author must design and create
Drill down Pages	No (SDC Note: Not true)	No

Articles	No (SDC Note: Not true; articles can be added as "attachments")	Author must design and create
Tests	One question per page – One test per course	One question per page – One test per course
Surveys	One question per page – One survey per course	One question per page – One survey per course
Multimedia Support	PowerPoint capabilities	Full multimedia support
Author Programming	No	No (SDC Note: Not true. A developer can customize via programming if need be)
Graphic Creation	Through PowerPoint	Yes
Translate WMF Files (Microsoft clip art) to Web Readable	N/A – whole page is translated	No
Audio Creation	Yes	Yes
Audio Integration	Yes	Yes
Hyperlink Support	Within PowerPoint	Author must design and create
Import Dreamweaver Pages	No	No
Import PowerPoint	Already PowerPoint	No

Table 3. External Study Comparing PowerPoint-based Converts to WYSIWYG-type WBT Authoring Tools